



PATENT  
Docket No.: 15275/8611 (Dobbins 2-1)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Reissue Application No.	: 08/833,620	)	
		)	
Filed	: April 7, 1997	)	
		)	Examiner:
U.S. Patent No.	: 5,043,002	)	J. Hoffman
		)	
Confirmation No.	: 2784	)	
		)	
Granted	: August 27, 1991	)	Art Unit:
		)	1731
Patentees	: Michael S. Dobbins	)	
	Robert E. McLay	)	
		)	
For	: METHOD OF MAKING FUSED SILICA	)	
	BY DECOMPOSING SILOXANES	)	

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**REPLY BRIEF UNDER 37 C.F.R. § 1.193(b)**

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Dear Sir:

Pursuant to 37 CFR § 1.193(b), appellants hereby file their Reply Brief (in triplicate) to the Examiner's Answer, dated March 10, 2003. Although no fees are believed to be due, the Commissioner for Patents is hereby authorized to charge Deposit Account No. 14-1138 for any fees owed.

All arguments set forth in appellants' Appeal Brief of December 23, 2002, are hereby repeated. This Reply Brief is submitted to respond to points made in the Examiner's Answer.

## **I. Introduction**

For the reasons set forth in appellants' Appeal Brief, the rejection of claims 12, 13, 22, 33-39, 41-44, 46, 47, 49, and 51-53 under 35 U.S.C. § 103(a) for obviousness over U.S. Patent No. 4,501,602 to Miller et al. ("Miller") in view of European Patent No. 38,900 to Schwarz et al. ("Schwarz") and, optionally, U.S. Patent No. 2,272,342 to Hyde ("Hyde") and/or Japanese Kokai Patent Application No. 138145 to Kawaguchi et al. ("Kawaguchi" or "'145") is improper and should be withdrawn. Since the Examiner's Answer relies upon an inaccurate characterization of appellants' position and the record, unsupported speculation, and fails to follow Federal Circuit precedent, it provides no basis for maintaining this rejection.

## **II. The Examiner's Answer Inaccurately Characterizes Appellants' Position and the Record**

### **A. Kawaguchi**

With reference to Kawaguchi (referred to in the Examiner's Answer as "'145"), the Examiner's Answer states:

It is also argued that '145 does not mention explicit support for the use of a polymethylcyclsiloxane. '145 need not explicitly mention the compound to teach the compound. It is noted that the arguments fail to question the rationale and conclusion that one viewing the '145 would at once envision the claimed polymethylcyclsiloxane; therefore it is deemed that Appellant agrees with the conclusion that one of ordinary skill reading '145 would at once envisage the polymethylcyclsiloxane.

Examiner's Answer at page 7, lines 6-11 (emphasis added). The prosecution history of this case makes it clear that any suggestion of appellants' agreement with the Examiner's position on Kawaguchi is completely inaccurate. In their Amendment, dated May 14, 2002 (page 5, line 11 to page 8, line 33), appellants vigorously challenged the Examiner's reliance on Kawaguchi in support of rejections under 35 U.S.C. §§ 102(b) and 103(a). For the Examiner to suggest otherwise, is belied by the record.

It is troubling that the Examiner's Answer takes this position when the Examiner has previously dropped the position that Kawaguchi is anticipatory. However, page 5 of the Examiner's Answer now attempts to resurrect this abandoned

position by stating that “[i]f one of ordinary skill in the art is able to ‘at once envisage’ the specific compound within the generic chemical formula, the compound is anticipated.” After this quote, the Examiner’s Answer discusses Kawaguchi and concludes as follows: “[i]t is deemed that the teachings are such that the claimed subgenus of polymethylcyclsiloxanes is at once envisaged.” The Examiner’s decision to resurrect the position that Kawaguchi supports an anticipation rejection is made clear by the first sentence on page 6 of the Examiner’s Answer which states: “[b]y fact that the methyl group is taught, ‘145 clearly anticipates polymethylsiloxanes.”

The inappropriateness of asserting that Kawaguchi is anticipatory is readily apparent from the prosecution history.

This is not the first time that appellants have pursued an appeal in this reissue application. Specifically, an Appeal Brief was filed on September 7, 2001. In response, rather than proceeding with the appeal to the Board of Patent Appeals and Interferences (“Board”), the Examiner sent out an Office Action on November 27, 2001. This Office Action was apparently made simply to add new rejections under 35 U.S.C. § 102(b) and 35 U.S.C. § 103 based on Kawaguchi alone. Appellants fully responded to these grounds of rejection in their Amendment, filed May 14, 2002. In his responsive final rejection, the Examiner only rejected the claims under 35 U.S.C. § 103(a) for obviousness over Miller, Schwarz, and, optionally, Hyde and Kawaguchi; the rejections under 35 U.S.C. § 102(b) and 35 U.S.C. § 103 over Kawaguchi alone were dropped. Since the final office action only rejected the claims for obviousness over the combination of Miller, Schwarz, and, optionally, Hyde and/or Kawaguchi, appellants’ Appeal Brief likewise only addressed this ground of rejection. For the Examiner to now characterize appellants’ decision to not address the withdrawn anticipation and obviousness rejections based on Kawaguchi alone as constituting an acquiescence to these rejections is entirely improper. Since the final rejection, dated June 20, 2002, does not impose a rejection under 35 U.S.C. § 102(b) or 35 U.S.C. § 103 over Kawaguchi alone, neither can the Examiner’s Answer. Moreover, having made and withdrawn such rejections, the Board should bar the Examiner from attempting to resurrect it now.

To the extent that the Board chooses to consider the issue of whether Kawaguchi alone is anticipatory, it is submitted that the Examiner’s position was fully addressed in appellants’ May 14, 2002, Amendment and that it was the Examiner (by

virtue of his withdrawal of the anticipation rejection based on Kawaguchi) who acquiesced. In any event, appellants's position on this issue is fully reiterated below.

In order for the reference to be anticipatory, the claimed subject matter must not simply fall within a generic disclosure but must be within a limited, well delineated class. See In re Ruschig, 343 F.2d 965, 973-74, 145 U.S.P.Q. 274, 281-82 (CCPA 1965); In re Petering, 301 F.2d 676, 681-82, 133 U.S.P.Q. 275, 279-80 (CCPA 1962). In Petering, the court concluded that the claimed compound was described by the prior art reference which described some 20 compounds of a limited class. 301 F.2d at 681-82, 133 U.S.P.Q. at 280. However, the court also made it clear that a generic chemical formula could not anticipate a claim to a particular compound if the formula encompassed a vast number of compounds. Id.

The decision in Ruschig is particularly helpful in defining the limits of the Petering-type analysis. In Ruschig, the court held that an anticipation rejection was not appropriate, because the genus of compounds described in the prior art reference did not represent a small recognizable class of compounds with common properties. 343 F.2d at 974, 145 U.S.P.Q. at 282. The court concluded that the selection and recombination of the substituents described in the prior art under consideration would result in a class of compounds ranging from 130 to 150 different compounds per reference. Id. In addition, the court cautioned against the indiscriminate use of Petering to support an anticipation rejection, stating that:

We did not intend our Petering opinion or decision to become precedent for the mechanistic dissection and recombination of the components of the specific illustrative compounds in every chemical reference containing them, to create hindsight anticipations with the guidance of an applicant's disclosures, on the theory that such reconstructed disclosures describe specific compounds within the meaning of section 102.

Ruschig, 343 F.2d at 974, 145 U.S.P.Q. at 282.

The Examiner has taken the position that Kawaguchi anticipates the claims of the present application, because Kawaguchi discloses a generic formula that could cover, but does not necessarily include, the three substituents that comprise polymethylcyclsiloxane; namely, silicon, hydrogen or aliphatic hydrocarbon, and oxygen. Although the Examiner has conceded that Kawaguchi does not specifically teach the use of polymethylcyclsiloxane to produce glass, he has apparently

attempted to reject the claims of the present application for anticipation, because the use of the three specifically claimed polymethylcyclsiloxanes would be at once envisaged by one of ordinary skill in the art based on the teachings of Kawaguchi. To support this view, the Examiner has sought to piece together various aspects of Kawaguchi to arrive at the conclusion that this reference teaches these polymethylcyclsiloxanes as a starting material for glass. In particular, the Examiner points to the disclosure of linear siloxanes and various methylsilanes in Kawaguchi as support for the rejection. These aspects of Kawaguchi are completely insufficient to support an anticipation rejection.

Further, since the generic formula of Kawaguchi does not have an upper limit for the integer "x" (i.e., the number of silicon substituents), the formula  $\text{Si}_x\text{R}_y\text{O}_z$  encompasses an indefinite number of compounds. Also, Kawaguchi discloses a diverse group of substituents that could be used as the "R" group, including "a hydrogen atom or an aliphatic monovalent hydrocarbon group to be selected from alkyl groups such as methyl, ethyl, propyl, or butyl, cycloalkyl groups such as cyclohexyl, alkenyl groups such as vinyl and allyl, etc." (page 6, lines 10-14). Although Kawaguchi discloses methylsilanes and polymethylsiloxanes, this does not mean the three claimed polymethylcyclsiloxanes (i.e., octamethylcyclotetrasiloxane, decamethylcyclopentasiloxane, or hexamethylcyclotrisiloxane) are necessarily present. The specific silanes taught by Kawaguchi are not siloxanes and the specific siloxanes shown are not the three specified methylcyclsiloxanes. The language in Kawaguchi that the disclosed siloxanes are represented by the general formula  $\text{Si}_x\text{R}_y\text{O}_z$ , where "y and z are positive integers which are not higher than  $2x+2$  and  $2x$ , respectively," does not mean that y and z can, in fact, be lower than these values, especially in the absence of any mention of polymethylcyclsiloxanes. The Examiner's assertion to the contrary is nothing more than unsupported speculation. In any event, the generic disclosure by Kawaguchi of an infinite number of compounds can hardly constitute the limited disclosure necessary to anticipate the claimed class of only three specific polymethylcyclsiloxanes.

For all these reasons, Kawaguchi cannot be anticipatory.

**B. Schwarz**

The Examiner's Answer also fails to accurately characterize appellants' position on Schwarz.

Schwarz is the only reference utilized in the obviousness rejection which discloses a polymethylcyclsiloxane. However, Schwarz only involves the production of a silicic acid dispersion and contains no suggestion that the resulting silicic acid dispersion is suitable for build up as a deposit on a support. Typically, such dispersions are used to thicken products like toothpaste. As pointed out in appellants' December 23, 2002, Appeal Brief (pages 11-13), there are significant reasons why one of ordinary skill in the art would not have used polymethylcyclsiloxanes to produce a glass monolith. In particular, such siloxanes would have been expected to produce excessive levels of carbon which would have been detrimental in using the glass to make precision optical products. In response to all of this, the Examiner's Answer stretches this argument to be that there is so much carbon present that the color of the resulting product would be black. To which the Examiner suggests was not a significant problem in the art, because those making silicic acid dispersions from polymethylcyclsiloxanes would not have accepted black thickened products like toothpaste (see page 8 of the Examiner's Answer).

Nowhere have appellants suggested that in order for carbon particles to be a problem there must be so much carbon present that a wholesale color change is apparent. As is clear from the record, the presence of small amounts of carbon are sufficient to detrimentally affect the optical properties of a precision glass product. Nowhere has the Examiner responded to why, despite the evidence of record and the art's well recognized concern about carbon deposits, one of ordinary skill in the art would have still been motivated to produce consolidated glass monoliths from polymethylcyclsiloxanes.

The Examiner's characterization that "the Schwarz reference teaches the use of the claimed compounds for a same motivation that Applicant uses the claimed compounds" (Examiner's Answer at page 14, lines 10-11) is also inaccurate. Nowhere does Schwarz teach using the claimed compounds for the same reasons as appellants.

The Declaration of Michael S. Dobbins Under 37 CFR § 1.132 ("Dobbins Declaration") fully discusses the carbon formation issue and why that

concern would cause those skilled in the art not to produce glass monoliths from polymethylcyclsiloxanes. In response, the Examiner's Answer (page 7, lines 12-17) states:

It is further argued that the compound would not work in view of the Dobbins Declaration (paper 20)—because one would not expect all of the carbon atoms to combust. This does not seem reasonable. Methyl groups combust readily. There is only an allegation that one would expect the carbon to be created. There would have to be something extraordinary happening for the methyl groups not to completely combust.

However, this does not accurately reflect the statements made in the Dobbins Declaration. In contrast to the Examiner's Answer, the Dobbins Declaration states that "not all of these carbon atoms would have been expected to combust when the siloxanes are passed through a burner" (*Id.* at ¶ 5). There is nothing in the literature or evidence of record that rebuts this. In contrast to the Examiner's Answer, it is completely reasonable to expect that not all carbon atoms will combust upon heating siloxanes of Schwarz with a burner. No amount of speculation by the Examiner can change that.

### C. Miller

The Examiner's Answer (page 3) admits that Miller fails to disclose the polymethylcyclsiloxanes of the present invention and concedes that Miller does not teach the specific species of octamethylcyclotetrasiloxane ("OMCTS"), decamethylcyclopentasiloxane ("DMCPS"), or hexamethylcyclotrisiloxane ("HMCTS"), but instead uses silicon tetrachloride. However, the Examiner's Answer erroneously characterizes this reference as being relevant because "Miller teaches that it is known that other silicon compounds can be used (col. 1, lines 32-41)" (Examiner's Answer at page 3). However, the portion of Miller cited in the Examiner's Answer to support this statement suggests that such other compounds are not suitable by stating "that silanes, chloro- and alkyl-substituted silanes, and/or silicate esters can be used in vapor delivery systems for optical waveguide production, but in general the instability, high reactivity, and/or limited vapor pressures of such compounds have mitigated against their use" (Miller at col. 1, lines 36-41) (emphasis added). Moreover, nowhere does Miller suggest that siloxanes, let alone cyclsiloxanes, could be used to make optical waveguides.

#### **D. Hyde**

With respect to Hyde, the Examiner's Answer (page 4) states that the reference shows that "for nearly 70 years it has been known that one can use any hydrolysable compound in making silica soot (page 2, lines 34-37)" (emphasis added). This characterization of Hyde is an overstatement of what that reference teaches. Nowhere does Hyde state that "any hydrolysable compound" can be used to make silica soot. Only carbon tetrachloride, silicon chloride, silicochloroform, methyl silicate, and ethyl silicate are specifically mentioned by Hyde and, importantly, Hyde makes no mention of using polymethylcyclsiloxanes.

#### **III. The Examiner's Answer Inappropriately Relies on Speculation**

In support of their position that the claimed invention is patentable, appellants have presented extensive amounts of evidence in the form of declarations and publications in the art. In response, the Examiner has failed to present any contrary evidence. He has neither presented articles nor his own declaration (see Manual of Patent Examining Procedure ("MPEP") § 2144.03) to support his rejection. Instead, he inappropriately relies on speculation. In view of the Examiner's failure to present evidentiary support for his positions taken in response to the evidence presented by appellants, the Examiner's speculative arguments should be given no weight (MPEP § 2144.03).

The Examiner's Answer (page 6, lines 24-26) states that Hyde and Kawaguchi "show that one would expect that one could easily use the cyclsiloxane [presumably of Schwarz] to build up silica on the support" (emphasis and bracketed comments added). This assertion is highly speculative and irrelevant. First, the Examiner's Answer provides no basis to support the view that, based on the teaching of Hyde and Kawaguchi, one would easily use the cyclsiloxane's of Schwarz to arrive at the present invention. Second, neither Hyde nor Kawaguchi involves the use of cyclsiloxanes, let alone polymethylcyclsiloxanes. Thus, any suggestion that the combination of Hyde and Kawaguchi yields transparent, high-purity silica glass articles is highly speculative and, indeed, incorrect.

The Examiner has also taken the position that "[t]he totality of the evidence suggests that at the time of the invention, one of ordinary skill in the art

would have expected to be able to successfully use the claimed starting material in the Miller project—and if carbon was to form, one would know to adjust the flame stoichiometry to get complete combustion” (Examiner’s Answer at page 9, lines 5-8). This argument again is entirely speculative and does not reasonably consider the weight of the evidence presented in this case.

In response to the evidence in the Declaration of Dale R. Powers Under 37 CFR § 1.132 (“Powers Declaration”) that results achieved when using a polymethylcyclsiloxane as a vapor feedstock are substantially better than when using a linear siloxane, the Examiner has speculated that this improvement is not unexpected (Examiner’s Answer at page 10, lines 3-8).

As appellants first stated in their Request for Reconsideration of June 30, 2000, Dr. Powers has extensive and impressive experience in fabricating fused silica glass and optical fibers (Powers Declaration ¶ 3). Based on this experience, Dr. Powers concluded that silica deposition achieved with HMDS is most fairly compared with silica deposition achieved with OMCTS and DMCPS when similar volumetric flowrates are used for each (Powers Declaration ¶ 8). As the Powers Declaration clearly shows, polymethylcyclsiloxanes of the present invention (e.g., OMCTS and DMCPS) achieve substantially higher levels and rates of soot deposition than linear siloxanes (e.g., HMDS). In the face of this evidence, the Examiner states that appellants have failed to show that one would expect Schwarz’s compounds to be preferred because the deposition rate is what Schwarz held as being preferred (Examiner’s Answer at page 10, lines 8-10). Instead, the Examiner states that the embodiment disclosed in Schwarz could be preferred for other reasons, including cost, deposition efficiency, ease of control, lower temperature, or anything else (Examiner’s Answer at page 10, lines 10-11). In addition, the Examiner has taken the position that the differences shown in the amount of silica deposited using the three different feedstock compounds was due to higher starting amounts of silicon atoms (Examiner’s Answer at page 10, lines 12-15). However, there is no basis presented for these highly speculative conclusions.

In response to the results in the Powers Declaration, the Examiner makes other speculative and unsupported conclusions. For example, in discussing the different parameters that can be used, the Examiner states that “[u]sing a different flame temperature, a different burner design, or target geometry might yield a [sic] different results” (Examiner’s Answer at page 12, lines 18-20) (emphasis added).

This quote has no factual support, and its use of the word “might” demonstrates that the Examiner is once again resorting to impermissible speculation.

#### IV. The Examiner’s Answer Does Not Follow Federal Circuit Precedent

In addition to the problems noted above, the Examiner’s Answer fails to follow Federal Circuit precedent on how to resolve questions of obviousness. In particular, the Federal Circuit has consistently held that “[e]vidence rising out of the so-called ‘secondary considerations’ must always when present be considered *en route* to a determination of obviousness.” Simmons Fastener Corp. v. Illinois Tool Works, Inc., 739 F.2d 1573, 1575, 222 U.S.P.Q. 744, 746 (Fed. Cir. 1984) (quoting Stratoflex, Inc. v. Aeroquip Corp., 713 F.2d 1530, 1538, 218 U.S.P.Q. 871, 879 (Fed. Cir. 1983)); see also In re Mageli, 470 F.2d 1380, 1383, 176 U.S.P.Q. 305, 307 (CCPA 1973) (stating that evidence bearing on the issue of non-obviousness “is never of ‘no moment,’ is always to be considered, and accorded whatever weight it may have”). In W.L. Gore & Associates, Inc. v. Garlock, Inc., the Federal Circuit stated that objective evidence of non-obviousness “may be the most pertinent, probative, and revealing evidence available to aid in reaching a conclusion on the obvious/nonobvious issue.” 721 F.2d 1540, 1555, 220 U.S.P.Q. 303, 314 (Fed. Cir. 1983).

The Examiner’s Answer consistently fails to follow this binding precedent by according no weight to appellants’ evidence and crafting arguments (with no evidentiary support) why no weight should be accorded to appellants’ evidence. This is entirely inappropriate. Proper consideration of appellants’ evidence of unexpected results mandates withdrawal of all rejections in this case.

The evaluation of the Powers Declaration in the Examiner’s Answer is but one example of how appellants’ objective evidence of non-obviousness is not being given proper consideration. Schwarz teaches that HMDS (i.e., a non-cyclic siloxane) is preferred over the other disclosed alternatives, such as polymethylcyclsiloxanes. As such, one would reasonably expect HMDS to achieve better results to the extent, if at all, Schwarz were relevant to a process of making a consolidated glass body (Powers Declaration ¶ 9). However, the Powers Declaration clearly shows that this was not the case, and the Examiner is incorrect in assigning no weight to the evidence presented in the Powers Declaration.

The argument that higher amounts of starting silicon atoms results in greater silica deposition is only relevant if time for deposition of silica were not important. There is no evidence to suggest that a rapid rate of producing the silica is not important. In fact, the rate of silica soot deposited (e.g., measured in grams/minute) is a key indicator of the effectiveness of a starting material. Under this view, the polymethylcyclsiloxanes of the present invention completely out-perform the linear siloxanes of Schwarz. Such a result is highly unexpected in light of the teachings of Schwarz.

Based on the Examiner's treatment of the Powers Declaration, it appears that no matter what experiments were run, a finding of no unexpected results would be levied against appellants. For example, the Examiner states:

It is unreasonable to expect that one can simply double the flow rate of HMDS without effecting [sic] the flame characteristics. Again, although Appellant has shown differences, there has been no showing that the differences would have been unexpected. A more relevant test would be reducing the Silicon atom supply rate of OMTCS to that of HMDS. However, a showing of this would not necessarily result in a showing of unexpected results.

(Examiner's Answer at page 11, lines 6-11) (emphasis added). Given the Examiner's position, one would be hard pressed to design a worthy experiment that could even be considered by the Examiner as yielding unexpected results. Further, the Examiner ignores the evidence in the Powers Declaration that attempts to harmonize the silicon delivery rate of HMDS to that of OMTCS and DMCPS caused the burner flame to become unstable, resulting in black carbon-laden soot being generated, and a non-uniformly shaped preform being produced (Powers Declaration at ¶ 7; Appellants' June 30, 2000, Request for Reconsideration at page 3, lines 4-9).

The Examiner has also taken the position that the experimental results presented in the Powers Declaration cannot be extrapolated to cover the scope of the claims (Examiner's Answer at page 11). The Examiner cites the specific burner and bait rod sizes used in the experiments as limiting the worth of the results described in the Powers Declaration (*Id.*). This is an unreasonable position, in that it takes the highly rigid and inappropriate view that representative sampling cannot be considered as evidence of a larger and similar group. Appellants contend that it is reasonable to

make this extrapolation and that Examiner has presented nothing to rebut this position.

As with the Powers Declaration, the Examiner's Answer also appears to ignore, or otherwise hold to an unreasonable and inappropriate standard, appellants' additional evidence of unexpected results and arguments regarding the shortcomings of the Examiner's position on obviousness. For example, the Examiner's Answer completely ignores the evidence of record that researchers in the relevant field of art would not have expected the cyclosiloxanes of Schwarz to be useful in producing a non-porous body of high purity fused silica glass. The evidence presented by appellants in favor of this position includes the Dobbins Declaration, GB 2,049,641 to Kratel et al. ("Kratel"), and Lipowitz, "Flammability of Poly(Dimethylsiloxanes). 1. A Model for Combustion," J. Fire & Flammability 7:482-503 (1976) ("Lipowitz").

In particular, in the Dobbins Declaration, co-inventor Dobbins made the following declarations:

At the time I made my above invention, researchers in this field would not have expected the polycyclosiloxanes of Schwarz to be useful in producing a non-porous body of high purity fused silica glass. In particular, Schwarz's polycyclosiloxanes have a large number of carbon atoms and not all of these carbon atoms would have been expected to combust when the siloxanes are passed through a burner. Indeed, the production of carbon when burning polycyclosiloxanes to form pyrogenic or fume silica or silicic acid is well documented in the literature.

Dobbins Declaration at ¶ 5. The Dobbins Declaration goes on to describe how Kratel and Lipowitz undermine the obviousness of using the Schwarz polycyclosiloxanes in the present invention (Id. at ¶¶ 5 and 6). The Dobbins Declaration further states:

However, the presence of carbon impurities could result in significant problems when making a non-porous body of high purity fused silica glass, particularly where that glass is used to make precision optical products like optical waveguide fibers. In making a non-porous body of high purity fused silica glass, scientists skilled in this area would not want any carbon to be present, not even at a parts per million level.

Dobbins Declaration at ¶ 7.

The Examiner's Answer, however, states that Kratel teaches how to overcome the problem of carbon formation due to heating siloxane; namely, burning the siloxanes with an additional fuel (e.g., a gas that will burn to form water, such as hydrogen or hydrocarbon gas) (Examiner's Answer at page 7). However, this does not undermine the fact that, as stated in the Dobbins Declaration, at the time of the invention, those skilled in the art were concerned that burning cyclosiloxanes to form fused silica glass could result in detrimental carbon formation. The Examiner makes every effort to ignore this, as evidenced by the Examiner's discussion of Lipowitz.

In describing Lipowitz, the Examiner's Answer contradicts its own rationale as to why Kratel shows that one of skill in the art would not have been worried about using cyclosiloxanes. The Examiner's Answer acknowledges that the fuel-rich conditions described in Lipowitz give rise to incomplete combustion of carbon. The Examiner's Answer also equates "fuel-rich" with "oxygen poor," and states that "[t]here is no reason to expect that one would use the prior art in an oxygen-poor flame, thus there is no reason to give Lipowitz any relevance in the present situation" (page 8, lines 6-7). However, as noted in the preceding paragraphs, when discussing Kratel, the Examiner's Answer readily states that one could overcome the problem of incomplete combustion of polycyclosiloxanes by adding additional fuel (such as hydrogen or hydrocarbon). An "additional fuel" would result in a "fuel-rich" mixture and, thus, an "oxygen poor" flame. Therefore, it is apparent that the positions in the Examiner's Answer regarding Kratel and Lipowitz are inconsistent. This demonstrates that the Examiner's position is not sufficient to rebut appellants' evidence that those skilled in the art would not have expected polymethylcyclosiloxanes to be useful in making consolidated glass products.

The Examiner's Answer also fails to accord appropriate weight to the evidence of unexpected results in the present application (particularly Example 4 and Figure 4). In particular, the Examiner states that "[t]he Applicant's [sic—Appellants'] arguments addresses the totality of the graph and fails to address the 'assertion' which only addresses the 'highest efficiencies'" (Examiner's Answer at page 13, lines 17-18) (emphasis in original). The Examiner further states that his "assertion points to only the most important data points—i.e., those data points in the 50-60% efficiency range" (Examiner's Answer at page 13, lines 19-20) (emphasis added). However, no bases are provided regarding why the Examiner's data points are the most important ones. This is yet another instance where, in the face of

evidence of unexpected results, the Examiner's Answer resorts to unsupported speculation. Under Federal Circuit precedent, this is a completely inappropriate approach to resolving a question of obviousness and, therefore, should be discounted.

## V. Conclusion

For the reasons set forth in the Appeal Brief and this Reply Brief, appellants submit that the final rejection of claims 12, 13, 22, 33-39, 41-44, 46, 47, 49, and 51-53 under 35 U.S.C. § 103(a) over Miller in view of Schwarz, and, optionally, Hyde and/or Kawaguchi, is improper and should be withdrawn. Accordingly, the final rejection should be reversed.

Respectfully submitted,

Dated: May 9, 2003

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May 9, 2003 Date	Jo Ann Whalen Jo Ann Whalen